REMARKS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Final Office Action mailed on March 2, 2005. Claims 1-18, 26, 28, and 31-36 are pending in the Application, Claims 1, 3, 6-14, 16-18, 26, 28, and 36 stand rejected, and Claims 2, 4-6 and 15 stand objected to as being dependent upon rejected base claims, but would be allowed if rewritten in independent form. Claims 26, 28, 31-35 have been allowed. The indication of allowable subject matter is noted with appreciation. Claims 1, 6, 11, 15, 26, 28, and 36 are amended by the present Amendment.

In the outstanding Office Action, the drawings were objected to under 37 C.F.R. § 1.83(a); the specification was objected to because it assertedly failed to discuss the term "liquid crystal deflecting element array" as recited in Claims 6 and 36; Claims 15, 28 and 36 were objected to because of informalities; Claims 6, 11, 26, 28, and 36 were rejected under 35, U.S.C. § 112, second paragraph; Claims 1, 3, 13-14, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Paoli et al. (U.S. Patent No. 5,461,412, hereinafter "Paoli") in view of Feinberg (U.S. Patent No. 5,745,155); Claims 1, 3, 7-11, 13-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Paoli in view of Nakajima et al. (U.S. Patent No. 5,753,907, hereinafter "Nakajima"); Claims 16-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Paoli in view of Feinberg and further in view of Andews et al. (U.S. Patent No. 5,493,326, hereinafter "Andews"); and Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Paoli in view of Feinberg and further in view of Hayashi et al. (U.S. Patent No. 6,081,386, hereinafter "Hayashi").

As to the objection to Applicants' drawings under 37 C.F.R. § 1.83 and objection to Applicants' specification, Applicants respectfully submit the "liquid crystal deflecting

element array being provided between the scanning unit and the scanned face" is shown in FIGS. 6 and 7A-7D (element 40A), and described in the specification from page 59, line 16 to page 61, line 10. Claim 6 is now amended to recite such an element as a "second liquid crystal deflecting element array." It should be noted that elements 40A and 40a are different elements in the drawings and the specification text of this application. Based on the foregoing, Applicants respectfully request reconsideration of the objection to the drawings and specification.

As to the objection to the claims, Applicants note with appreciation the time taken by the Examiner to identify specific areas needing revisions. Applicants have amended Claims 15, 28, and 36, including correction of the cited informalities, and respectfully request reconsideration of the objection thereto. In addition, in view of the present amendment, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

As to the rejection of Claims 6, 11, 26, 28, and 36 under 35 U.S.C. §112, second paragraph, Applicants note with appreciation the time taken by the Examiner to identify specific areas needing revisions. Applicants submit that the amendments to Claims 6, 11, 26, 28, and 36 enclosed herein have overcome these rejections under 35 U.S.C. §112 and respectfully request their withdrawal.

As to the obviousness rejections of the claims, Applicants respectfully submit that Paoli, Feinberg, Nakajima, Andews, and Hayashi, neither individually nor in any combination thereof, support a *prima facie* case of obviousness of the invention recited in Claims 1, 13, 18 and 36. This is so because, even when combined, these references do not teach or suggest all the claimed features.

According to a feature of the invention as set forth in Claims 1, 13, 18 and 36, light scanning apparatuses and methods of scanning are recited, comprising, among other features, a liquid crystal element to deflect a light beam to adjust the position of a light beam spot formed on a scanned face, and a compensating unit to compensate the light intensity of the light beam at the scanned face due to a change caused by the adjustment of the position of the light spot.

In the outstanding Office Action it was acknowledged that Paoli fails to teach or disclose the claimed light intensity compensating unit. Both Feinberg and Nakajima have been cited for remedying this deficiency. However, Applicants respectfully submit that there is no motivation to modify Paoli with either Feinberg or Nakajima as further explained next.[1]

Paoli describes a system for correcting scan line curvature caused by an offset between a light source and an optical axis.[2] The raster output scanning apparatus 10 includes a light source 14, which produces diverging beams of coherent light 16a and 16b. In the path of beams 16a and 16b are a spherical lens 18, a cylindrical lens 20, which has power only in the slow scan plane, optical beam deflecting element 22, scanning device 24, first spherical lens 28, and toroidal lens 30. The path of beams 16a and 16b terminate at image plane 32.[3] As the scan proceeds, the wavelength is shifted by varying the bias level on a modulator region of the laser; as a result, the position of each spot on the photoreceptor is moved in the slow scan direction ***so as to form a scanned line without curvature***.[4]

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[1] See MPEP 2143.01 stating "[o]bviousness can only be established by combining or modifying the teaching of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art," (citations omitted). See also MPEP 2144.08 III stating that "[e]xplicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. . . Conclusory statements of similarity or motivation, without any articulated rational or evidentiary support, do not constitute sufficient factual findings."

[2] See the abstract of the Paoli patent.

[3] Paoli, col. 4, lines 17-46.

[4] *Id.*, col. 5, lines 16-49, emphasis added.

Paoli describes that the beam deflecting element 22 may be made of a liquid crystal.[5] However, the beam deflecting element 22 is "one of several different elements which are known to provide angular deflection determined by the wavelength of the incident light."[6] "The optical beam deflecting element 22 is beneficially constructed from optically transparent glass for lowest cost or from a semiconductor material like AlGaAs for highest dispersive power."[7]

The liquid crystal element according to the present invention is different from the beam deflecting element 22 disclosed in Paoli in that it is electrically controllable as described in Applicants' specification.[8]

Feinberg relates to the correction of nonuniformity of a light beam generated by a raster output scanner.[9] In the raster output scanner 10, a Helium Neon laser light source 12 emits a light beam 14 onto a mirror 18 to reflect the light beam 14 onto an acousto-optic modulator 20, which produces a modulated light beam 21 sent out to a mirror 22, which in turn reflects the light beam 21 onto another mirror 24. Mirror 24 reflects the light beam 21 onto a rotating polygon 26, which has a plurality of facets 28 for receiving the light beam 21. The light beam 21 is scanned by the polygon 26 in a straight line onto a liquid crystal output window 30, which corrects the nonuniformity of the intensity of the light beam, or "roll off," by adjusting attenuation of each individual cell on the liquid crystal window.[10]

As explained, Feinberg discloses the use of a liquid crystal window for correcting the non-uniformity of a light beam by controlling a variable attenuation to match the curve of the

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[5] See, for example, Paoli, col. 6, line 54.

[6] Id., col. 6, lines 33-36.

[7] Id., col. 6, lines 48-51.

[8] See, for example, specification from page 46, line 19 to page 47, line 11, and shown in FIGS. 1B and 2A-1D.

[9] See, for example, the abstract in Feinberg.

[10] Feinberg, col. 2, line 48 – col. 3, line 37.

intensity of the light beam. The present invention is different from Feinberg in that the liquid crystal deflecting element array changes the angle of the light beam.

The outstanding Office Action states that the proposed modification would have been obvious "to eliminate the variation in intensity over each scan line regardless of the variation of the intensity generated by the raster output scanning device as suggested by Feinberg." The record, however, fails to provide the required evidence of a motivation for a person of ordinary skill in the art to perform such modification, particularly considering the fact that the Paoli device, as summarized hereinabove, already addresses, and presumably fixes, the same or similar problem, i.e., the correction of scan line curvature caused by an offset between a light source and an optical axis.

As such, an attempt to bring in the isolated teaching of the liquid crystal window of Feinberg into the Paoli device would amount to improperly picking and choosing features from different references without regard to the teachings of the references as a whole.[11] While the required evidence of motivation to combine need not come from the applied references themselves, the evidence must come from *somewhere* within the record.[12] In this case, the record fails to support the proposed modification of the Paoli system.

The U.S. Court of Appeals for the Federal Circuit recently vacated a rejection under 35 U.S.C. § 103(a) based on similar grounds.[13] In vacating a rejection, the Court stated:

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[11] See In re Ehrreich 590 F2d 902, 200 USPQ 504 (CCPA, 1979) (stating that patentability must be addressed "in terms of what would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the sum of all the relevant teachings in the art, not in view of first one and then another of the isolated teachings in the art," and that one "must consider the entirety of the disclosure made by the references, and avoid combining them indiscriminately.")

[12] In re Lee, 277 F.3d 1338, 1343-4, 61 USPQ2d 1430 (Fed. Cir. 2002) ("The factual inquiry whether to combine references ... must be based on objective evidence of record. ... [The] factual question of motivation ... cannot be resolved on subjective belief and unknown authority. ... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion").

[13] *In re Beasley*, 2004 U.S. App. LEXIS 25055 (Fed. Cir. December 2004)

> The record reflects that the examiner and the Board have managed to find motivation for substituting one type of memory for another ***without providing a citation of any relevant, identifiable source of information justifying such substitution***. The statements made by the Examiner, upon which the Board relied, amount to no more than conclusory statements of generalized advantages and convenient assumptions about skilled artisans. At least under the MPEP then in effect, such statements and assumptions are inadequate to support a finding of motivation, which is a factual question that cannot be resolved on "subjective belief and unknown authority." *Lee*, 277 F.3d at 1344. Under such circumstances, with respect to core factual findings, "the Board ***must point to some concrete evidence in the record in support***" of them, rather than relying on its assessment of what is "well recognized" or what a skilled artisan would be "well aware." (emphasis added)

Furthermore, it is not clear from the record how the liquid crystal window of Feinberg could be incorporated into the Paoli device. Under such a modification, the entire optical path would have to be recalculated and lens-related variables, such as focal length, diameter, etc, would have to be changed to accommodate the proposed change to solve a non-existing problem. Such modification would require a substantial reconstruction or redesign of the elements of the Paoli device, and/or would change the basic principle of operation of the Paoli device. There is no evidence that a person of ordinary skill in the art would be motivated to perform such changes and redesign.[14] Furthermore, it is not clear from the record whether such modification would actually work as claimed.

In rejecting a claim under 35 U.S.C. § 103(a), the USPTO must support its rejection by "substantial evidence" within the record,[15] and by "clear and particular" evidence[16] of a

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[14] See In re Ratti, 270 F.2d 810, 813, 123 USPQ 349, 352 (reversing an obviousness rejection where the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.")

[15] In re Gartside, 203 F3d 1305, 53 USPQ2d 1769 (Fed. Cir. 2000) (holding that, consistent with the Administrative Procedure Act at 5 USC 706(e), the CAFC reviews the Board's decisions based on factfindings, such as 35 U.S.C. § 103(a) rejections, using the 'substantial evidence' standard because these decisions are confined to the factual record compiled by the Board.)

[16] In re Dembiczak, 175 F3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, although 'the suggestion more often comes from the teachings of the pertinent references.' The range of sources

suggestion, teaching, or motivation to combine the teachings of different references. As discussed above, there is no substantial evidence, nor clear and particular evidence, within the record of motivation for modifying the Paoli device by incorporating Feinberg's liquid crystal window. Without such motivation and absent improper hindsight reconstruction,[17] a person of ordinary skill in the art would not be motivated to perform the proposed modification, and Claims 1, 13, and 18 are believed to be non-obvious and patentable over the applied prior art.

As to Andews, and Hayashi, Applicants respectfully submit that both references do not remedy the above-summarized lack of motivation to combine Paoli and Feinberg.

As to the combination of Paoli and Nakajima, Applicants respectfully submit that no motivation to combine was provided, preventing Applicants to properly respond to the outstanding rejections based on Paoli, Nakajima, Andews, and Hayashi, individually or in any combination.

Therefore, based at least on the foregoing, Applicants respectfully submit that Paoli, Feinberg, Nakajima, Andews, and Hayashi, neither individually nor in any combination thereof, make obvious the invention recited in Claims 1, 13, 18, and 36. In addition, Claims 2-12 and 14-17 should be allowed, among other reasons, as depending either directly or indirectly from Claims 1 and 13, which should be allowed as just explained. For the foregoing remarks, Applicants respectfully request withdrawal of the claim rejections under 35 U.S.C. § 103(a).

The present amendment is submitted in accordance with the provisions of 37 C.F.R. §1.116, which after a Final Rejection permits entry of amendments placing the

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available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular.") (emphasis added).

[17] See MPEP 2141, stating, as one of the tenets of patent law applying to 35 USC 103, that "[t]he references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention."

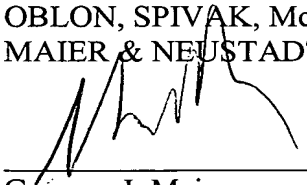
claims in condition for allowance or in better form for consideration on appeal.[18] As the present amendment is believed to overcome the outstanding objections and rejections under 35 U.S.C. §§ 112 and 103, the present amendment places the application in condition for allowance or in better form for consideration on appeal. In addition, the present amendment is not believed to raise new issues since it only addresses antecedent issues raised in the rejections under 35 U.S.C. § 112, second paragraph. It is therefore respectfully requested that 37 C.F.R. § 1.116 be liberally construed, and that the present amendment be entered.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-18, 26, 28, and 31-36 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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[18] See, for example, MPEP §714.12.